Benefits Calculation, Monetization, and Resiliency (BCMR) Tab, A.5 Quantification Support

Explanation of Linkages between Groundwater-Surface Water Models, and Ecosystem, Water Quality Benefits and Monetization

Model products and assumptions for groundwater-surface water interactions are described in Technical Memorandums files:

- Regional San_SacIWRM ModelingTM_A.1Project Conditions_SecBCMR,
- Regional San_CALSIM_HEC5Q_ModelingTM_A.1Project Conditions_SecBCMR,
- Regional San_ClimateScenariosForHEC5Q_TM_A.1_ProjectConditions_SecBCMR

The Tech Memos are uploaded to the Benefit Calculation, Monetization, and Resiliency tab, A.1 Project Conditions. The supporting input/output files for these Tech Memos are the zip files uploaded to A.5 Quantification Support.

Modeling of Program-related changes in the surface water system was performed using the WSIP Nov. 2, 2016 CalSim II (CalSIM) model, and was used without modifications, including model limitations. As the Program has significant ecosystem benefits due to groundwater restoration and surface water benefits that are linked to groundwater benefits, the Sacramento Area Integrated Water Resources Model (SacIWRM) was used. SacIWRM was selected as it is the most widely accepted integrated groundwater-surface water model for the Sacramento region.

The Conceptual Ecological Plan file, located in Physical Public Benefits tab, A.1 Ecosystem Benefits, lays the foundation for the A.3 Monetized Benefits Analysis in the Benefit Calculation, Monetization, and Resiliency tab. The quantification of ecosystem benefits is based on the groundwater-surface water modeling listed above.

Other supporting documentation for monetizing the water quality benefit of salinity reduction is located in files:

- Regional San_WQ Salinity TM_A.1 WQ Benefit-Quantification_SecPPB.pdf
- Regional San_DSM2 modeled SRWTP effluent percent_A.2 WQ Benefits Supporting Docs_SecPPB.zip
- WQ Quantification Support_A.2 WQ Benefits Supporting Doc.zip

These files are located in Physical Public Benefits tab, A.1 and A.2, Water Quality Benefits. The water quality model input/output parameters can be found in the Regional San_DSM2 modeled SRWTP effluent percent_A.2 WQ Benefits Supporting Docs_SecPPB.zip.

In quantifying the Water Quality benefit of salinity reduction, a customized model was used and developed in support of the Draft Environmental Impact Report (EIR) for the EchoWater Project. Flow Science used the following models: California Department of Water Resources' CALSIM; the Delta Simulation Model II; a near-field three dimensional dilution model, FLOWMOD; a longitudinal dispersion model for the Sacramento River; and U.S. EPA's Dynamic Toxicity Model.